For **1-5** determine the vertex, axis of symmetry, and intercepts of the following quadratic functions by rewriting them in the form $y = a(x-h)^2 + k$ if necessary.

1. $y = 2(x+2)^2 + 4$
2. $y = -x^2 + 6x - 1$
3. $y = \frac{1}{4}x^2 + x$
4. $y = (x+1)^2 + (x-3)^2$
5. $y = 2x^2 + 5x + \frac{1}{8}$

6. Determine the quadratic function which has vertex $(2, 3)$ and passes through the point $(6, 11)$.
7. Determine a formula for the quadratic function whose x-intercepts are at $(-5, 0)$ and $(1, 0)$, and which passes through the point $(2, 14)$. Give your answer in the form $f(x) = ax^2 + bx + c$.
8. When the length of a rectangle is decreased by 4 meters and its width is increased by 3 meters the result is a square that has the same area as the original rectangle. What are the dimensions of the original rectangle?